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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/708,335	02/25/2004	Andreas Knecht	P7375.6US	2334
30008	7590	08/26/2004	EXAMINER	
GUDRUN E. HUCKETT DRAUDT			RIDDLE, KYLE M	
LONSSTR. 53			ART UNIT	PAPER NUMBER
WUPPERTAL, 42289				3748
GERMANY				

DATE MAILED: 08/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/708,335	KNECHT ET AL.
	Examiner	Art Unit
	Kyle M. Riddle	3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on _____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-3,6 and 10-15 is/are rejected.
- 7) Claim(s) 4,5 and 7-9 is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 25 February 2004 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ . |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>07302004</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 30 July 2004 contains the following informalities: “4,167,882” should read --4,617,882--. Appropriate correction is required.

Specification

2. The disclosure is objected to because of the following informalities:

- Page 2, line 8, “6’” is not shown in the drawings;
- Page 4, line 8, “Fig. 5a” should read --Fig. 5--;
- Page 7, line 1, “27” is not shown in the drawings.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Mikame (U.S. Patent 6,244,230).

Mikame discloses a variable valve timing apparatus comprising:

- an intake camshaft lift adustor actuator 625 and an exhaust camshaft phase adjustor 624 (column 14, lines 52-55 and Figure 13) driven by an endless drive connected to the crankshaft through transmission train 690 and exhaust timing pulley 624a coupled to the exhaust camshaft 623 (column 14, lines 33-38 and Figure 13);

- intake actuator 625 is incorporated in intake gear 625b and exhaust actuator 624 is incorporated in exhaust gear 624b, the two gears 624b, 625b connected and directly drivingly meshed with each other (column 14, lines 45-55 and Figure 13);

- the two gears 624b, 625b being the same size (Figure 13).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 2, 6, and 10 are rejected under 35 U.S.C. 103(a) as being obvious over Mikame.

Mikame discloses a variable valve timing apparatus comprising an intake camshaft actuator and an exhaust camshaft actuator driven by an endless drive connected to the crankshaft through a transmission train and an exhaust timing pulley coupled to the exhaust camshaft, the intake actuator incorporated in an intake gear and the exhaust actuator incorporated in an exhaust gear, the two gears connected and directly drivingly meshed with each other, further employing the use of timing chains and sprockets (column 18, lines 19-21). Mikame, however, fails to position the drive wheel or exhaust timing pulley adjacent to the gear.

Mikame locates the exhaust timing pulley or drive wheel of the transmission train 690 on the other end of the exhaust camshaft to provide more layout space and less interference with other components (column 15, lines 1-9 and Figure 13), suggesting that the drive wheel could be located elsewhere including adjacent to the actuator gear. Locating the drive wheel adjacent the gear would have been obvious to one having ordinary skill in the art depending on space

requirements, engine design, and torque needs. Moreover, there is nothing in the record which establishes that the relative location of the drive wheel and gear represents a novel or unexpected result (See *In re Kuhle*, 526 F.2d 553, 188 USPQ 7 (CCPA 1975)).

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being obvious over Mikame in view of Elrod et al. (U.S. Patent 5,417,186).

Mikame, as cited above, discloses a variable valve timing apparatus comprising an intake camshaft actuator and an exhaust camshaft actuator driven by an endless drive connected to the crankshaft through a transmission train and an exhaust timing pulley coupled to the exhaust camshaft, the intake actuator incorporated in an intake gear and the exhaust actuator incorporated in an exhaust gear, the two gears connected and directly drivingly meshed with each other, further employing the use of timing chains and sprockets, it being obvious to locate the exhaust timing pulley or drive wheel adjacent the gear. Mikame, however, fails to disclose including a spacer member between the drive wheel and gear.

Elrod et al. teach a dual-acting phasing mechanism using a sleeve spacer 155 to separate splined member 50 and collar flange 53 (column 10, lines 7-11 and Figures 14-17). It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the teaching by Elrod et al. in the variable timing apparatus of Mikame, since the use thereof would have provided necessary spacing between the rotating members.

8. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mikame in view of Sugano et al. (U.S. Patent 5,735,239).

Mikame discloses the variable valve timing apparatus cited above, however, fails to disclose an intermediate shaft with a common driving.

Sugano et al. teach a camshaft arrangement with an endless drive connected from the crankshaft to pulleys 34 on shafts 31, 32 with gears 36 connected to intake and exhaust camshafts 13-16 (column 3, lines 50-67 with column 4, lines 1-5 and Figure 2). It would have been obvious to one having ordinary skill in the art at the time of the invention was made, to have utilized the teaching by Sugano et al. in the variable timing apparatus of Mikame, since the use thereof would have provided an additional means of transferring the rotational power of the crankshaft to the respective camshaft assemblies.

Allowable Subject Matter

9. Claims 4, 5, 7-9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

10. The IDS (PTO-1449) filed on 30 July 2004 has been considered. An initialized copy is attached hereto.

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of 2 patents.

- Makimura et al. (U.S. Patent 5,351,663) disclose a v-type engine with an interim shaft driven by the crankshaft and driving an exhaust camshaft which is geared to an intake camshaft.

- Kobayashi et al. (U.S. Patent 5,564,380) disclose a camshaft operating system with directly coupled intake and exhaust camshafts.

Communication

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kyle M. Riddle whose telephone number is (703) 306-3409. The examiner can normally be reached on M-F (07:30-5:00) Second Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (703) 308-2623. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Kyle M. Riddle
Examiner
Art Unit 3748

kmr


THOMAS DENION
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TECHNOLOGY CENTER 3700